1:Haskins K-4,5 (1952-1954)1956 SO11 Bahia Brazilians SO11

491 for vehicles to pass from the main highways over the broader trails
484 to the nearby villages in good weather. However, this is rarely attempted except by jeep, and by these only infrequently.

249 Until the last few years a number of the large usinas in the main
• 499 sugar cane area have not been connected with the highways. Since jeeps and trucks have become more numerous in the Recôncavo, a number of the big usinas in Santo Amaro are constructing their own outlets to the
315 highway. In recent years the government-owned oil company has been
655 drilling exploratory wells in the cane fields of São Francisco. In
491 conjunction with this enterprise, new roads have been built, and for the
499 first time many plantations of this area have road connections to the highway system.

494 Most of the traffic on the roads of the Recôncavo consists of
493 trucks and busses--private automobiles generally are found only in the urban areas, since cars are very expensive in Brazil, and the highways are very destructive. A large number of busses connect the outer Recôncavo with Salvador. The best passenger service, and the most expensive, is provided by a major bus line which has a daily run from Salvador to Feira de Santana and back. While this bus line employs large busses, most of the other busses used in the Recôncavo are small. These latter provide connections between the Southwestern Recôncavo and Salvador, and supplement the major Feira de Santana-Salvador service. The runs of many of these smaller busses originate outside the Recôncavo, but they collect and discharge passengers at each cidade. Fares are cheap, considering the cost of vehicles and fuel, but still somewhat more expensive than train travel.

Truck traffic is very heavy on the main highways, especially from Feira de Santana to Salvador. Probably most of the agricultural

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249 Processing of Agricultural Products. Each of the three principal
252 crops of the Recôncavo require processing before it can be consumed.
276 Sugar cane and manioc are highly perishable, and both are processed in their entirety within the region. Tobacco, once it is fermented, can be stored for longer periods, so that there is no necessity for immediate processing within the Recôncavo. Sugar cane is processed in large usinas and to a lesser extent in engenhos (primitive sugar mills). Tobacco
[277] products are fabricated in small-scale home industries and in factories. Manioc is converted into farinha de mandioca in very small mills.

249 The cultivation, transportation, and processing of sugar cane
489 require an integrated system in which there is some form of centralized
471 administration. The larger usinas own and operate most of the surrounding cane plantations and the associated transportation system, and administration is direct. Where cane is purchased from furnishers--privately-owned plantations--the mill specifies the type of cane which it will buy and the schedule of delivery. Most of the sugar cane in the Recôncavo is processed by usinas, which produce sugar, rum, and alcohol. However, there are a number of engenhos and a few smaller usinas which specialize in the production of rum or crude sugar. The engenhos are most important around the margins of the main sugar cane area north of the Bay and in Cachoeira and São Félix, but the usinas dominate the core area of cane production in Santo Amaro, São Francisco, and São Sebastião. Within the core area the big usinas generally are located near but not on the main railroads, although a few are situated near the shore of the Bay.

249 The harvested sugar cane generally is delivered to smaller mills
492 by the grower, usually on ox carts. The larger mills receive their
249 cane via the railroad or the Bay. In these cases the cane is trans-
499 ported by ox cart from the cane fields to a weighing station, from
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4: Pierson Z-4, 5 (1935-1937) 1967
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•[499]

In 1882, the Roberts' Commission having been disbanded, I helped extend the rail line from Bahia to the São Francisco River, it being my job to draw up plans and specifications for the steel bridges of the railway.

In 1883 I was invited by Antonio Placido Peixoto de Amarante to be his First Engineer on the Comissão de Desobstrução do Rio de São Francisco, a project which we had studied together under the direction of Roberts three years before and which it had now fallen to his lot to execute as Chief Engineer. We removed the obstruction due to the celebrated Sobradinho Falls, the greatest obstacle to navigation in the upper part of the river, and shipping was soon established between the city of Joazeiro and the Falls of Pirapora, where the navigable section of the river ends.

For a little more than three years, or until 1886, I continued with this work. Orville Derby, who had been named head of the Geographic and Geological Commission of São Paulo, then invited me to be his First Engineer, charged especially with the geodetic survey.

The province of São Paulo was at that time governed by Senator João Alfredo Correa de Oliveira, an eminent man, who had always borne in mind the problem of communication with the interior and had just turned his attention to inland navigation and especially to the possibilities of connecting São Paulo with the faraway province of Matto Grosso. With this object in mind, we began the exploration of the Paranapanema, from its source in the Serra do Mar, in Itapetininga, to its junction with the Paraná River above Sete Quedas (Seven Falls). Studying the river from the point of view of its navigability, a labor which we carried out during the dry season of 1886, we found that more than two-thirds of its course was impracticable for navigation. This river failed to afford the solution for which we were searching. The Paranapanema is a great reservoir of hydroelectric energy rather than a passage between the Paraná-Paraguay and the Atlantic coast of southern Brazil.

On returning from these studies, which had also included an investigation of the geological character of the valley by the notable geologist, Francisco de Paula Oliveira, as well as an examination of those natural conditions bearing upon the productivity of the soil, and, in addition, ethnographic and ethnological studies of the Indians still dominating the woods and the plains of the Lower Paranapanema, we